UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/836,251	04/18/2001	Toshiaki Kondo	862.C2204	6069

5514 7590 04/21/2004

FITZPATRICK CELLA HARPER & SCINTO
30 ROCKEFELLER PLAZA
NEW YORK, NY 10112

EXAMINER	
CHAWAN, SHEELA C	
ART UNIT	**PAPER NUMBER**
2625	

DATE MAILED: 04/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/836,251	KONDO, TOSHIAKI	
	Examiner	Art Unit	
	Sheela C Chawan	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 April 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. Drawings filed on 4/18/01 have been approved by Examiner's

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1- 4, 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marugame (US. 5,995,649) in view of Spiegel et al. (US. 5,940,538).

As to claim 1, Marugame discloses an image processing apparatus comprising:

a selector, arranged to select a plurality of feature points (column 9, line through column 8, line 4) on or near a contour line of a region of interest when a contour of the region (fig 1, item 70) of interest in a reference image sensed at reference time (column 10, lines 40- 67) or viewpoint is input (column 11, lines 12-31);

a seeker, arranged for seeking a plurality of corresponding points (column 9, lines 59- 65), which respectively correspond to the plurality of feature points (column

10, lines 40- 53), in an image to be sought, which is sensed at another time (fig 3 item 1a and 1b are two cameras taking two images of a reference object at approximately the same time, a first image with a first camera and a second image with a second camera, wherein the first and second cameras are in different positions) or viewpoint (column 3, lines 1-3); and

Marugame discloses an image processor to extract only an image of a specific object in a designated space among input images. Marugame is silent about specifics details of a memory for storing a connectivity between the plurality of selected feature points;

an extractor, arranged to extract a contour between the plurality of corresponding points as a region of interest of the image to be sought on the basis of the connectivity stored in said memory.

In the same field of endeavor, however, Spiegel discloses an apparatus and method for object border tracking. The system comprises of:

a memory for storing a connectivity between the plurality of selected feature points (column 16, lines 30- 67, column 17, lines 1- 67);

an extractor (fig 3A, item 350, an extractor finds the marked border locations in key frames), arranged to extract a contour between the plurality of corresponding points as a region of interest of the image to be sought on the basis of the connectivity stored in said memory (column 14, lines 25- 56). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Marugame to include a memory for storing a connectivity between the plurality of selected feature points. It

would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Marugame by the teaching of Spiegel in which chain code are used to extract border description, and junctions information in order to accurately predict the border position as suggested by Spiegel at column 18, lines 32- 34).

As to claim 15, see the rejection of claim 1.

As to claim 16, see the rejection of claim 1.

As to claim 2, Marugame discloses the apparatus wherein said selector uses at least some of the plurality of corresponding points as feature points (column 11, lines 18- 31, 34-39) used to extract the region of interest (column 3, lines 27- 29, 32-39) of the image to be sought (column 3, line 62 through column 4, line 6).

As to claim 3, Marugame discloses the apparatus wherein said selector selects the feature points (column 3, lines 27-31) on the basis of shape (fig 3, item 70, extracting contour point from the object and forming a contour of an object, column 18, lines 2-29) information of the contour of the region of interest (column 3, lines 27-31, column 18, lines 2-29).

As to claim 4, Marugame discloses the apparatus wherein said selector selects the feature points on the basis of image information on or near the contour line of the region of interest (column 4, lines 7-60, column 5, lines 21-45, column 13, lines 21-60, column 18, lines 45- 58).

4. Claims 5 -14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marugame (US. 5,995,649) in view of Spiegel et al. (US. 5,940,538), as applied to the claims 1- 4, 15 and 16 above and further in view of Murayama (US.5,923,786).

Marugame discloses an image processor to extract only an image of a specific object in a designated space among input images. Marugame is silent about specifics details of one of two feature points having connectivity as a start point, and the other as an end point.

In the same field of endeavor, however, Murayama discloses method and device for encoding and decoding moving images. The system comprises of:

wherein said extractor sequentially traces pixels with high edge strengths using one of two feature points having connectivity as a start point (column 11, line66 through column 12, line 5), and the other as an end point (column 51 line 13 through column 52, line 5). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Marugame to include one of two feature points having connectivity as a start point, and the other as an end point. It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Marugame by the teaching of, Murayama in order to improve degree of reliability by expressing the two consecutive points are calculated, as suggested by Murayama at column 3, lines 34- 52).

As to claim 6, Murayama discloses the apparatus wherein said extractor performs the trace in two directions (fig 10, fig 13A -H) by replacing the feature points as the start and end points with each other, and selects one of trace results (column 53, line 38 through column 54, line 31).

As to claim 7, Murayama discloses the apparatus wherein said selector selects new feature points on the basis of a period where the trace results in the two directions match (column 53, line 38 through column 54, line 31).

As to claim 8, Murayama discloses the apparatus wherein said extractor performs masking of neighboring pixels (column 10, lines 47- 60) in correspondence with a positional relationship between a point of interest and the end point upon comparing edge strengths of the neighboring pixels at the point of interest (column 12, lines 13-31) of trace (fig 74,75 and 76, column 52 line 14 through column 53, line 67, column 54, lines 1-40).

As to claim 9, Murayama discloses the apparatus wherein the masking uses a mask corresponding to an angle the point of interest and the end point make with each other (column 51, lines 13-36).

As to claim 10, Murayama discloses the apparatus according wherein the masking limits a field of view of the trace so as to prevent the point of interest from moving away from the end point (column 53, line 38 through column 54, line 31).

As to claim 11, Murayama discloses the apparatus wherein the masking limits a field of view of the trace so as to make the point of interest always approach the end point (column 10, lines 47- 60).

As to claim 12, Murayama discloses the apparatus wherein the masking limits a field of view of the trace so as to prevent the point of interest from returning to a previous path thereof (fig 74,75 and 76, column 52 line 14 through column 53, line 67, column 54, lines 1-40).

As to claim 13, Murayama discloses the apparatus wherein the extractor comprises a plurality of sets of masks having different field limitation characteristics, and selectively uses the plurality of sets of masks in correspondence with image information of a trace period (column 8, lines 23- 42, column 9, lines 1-43).

As to claim 14, Murayama discloses the apparatus wherein the extractor comprises a plurality of sets of masks having different weighting coefficients, and selectively uses the plurality of sets of masks in correspondence with image information of a trace period (column 30, lines 14-27, 53-61).

Other prior art cited

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Onoguchi (US. 5,784,778) discloses an image processing apparatus and method.

Lee et al. (US.6,400,831 B2) discloses semantic video object segmentation and tracing.

Mitsunaga et al.(US.6,252,985 B1) discloses an image detecting apparatus.

Ikezawa et al. (US.5,471,535) discloses method for detecting a contour of a given subject to be separated from images and apparatus for separating a given subject from images.

Contact Information

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sheela C Chawan whose telephone number is 703-305- 4876. The examiner can normally be reached on Monday - Thursday 6 - 7.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on 703-308-5246. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sheela Chawan
Patent Examiner
Group Art Unit 2625
April 16, 2004

Jayanti K. Patel
Primary Examiner